NewsRelease

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NASA LANGLEY TO TEST NEW HYPER COMPUTER SYSTEM

Computing Faster Than Engineers Can Think

NASA Langley engineers are exploring new tools and techniques that may move them and the projects they develop beyond the serial world into a parallel universe.

Via a Space Act Agreement, NASA Langley Research Center will receive a HAL (Hyper Algorithmic Logic)-15 Hypercomputer from Star Bridge Systems, Inc. of Midvale, Utah. The system is said to be faster and more versatile than any supercomputer on the market and will change the way we think about computational methods.

Taking up no more space than a standard desktop computer and using no more electrical current than an hair drier, the HAL-15 is the first of a new breed of high performance computer that replaces the traditional central processing units with faster Field Programmable Gate Arrays (FPGAs). These are specialty chips on a circuit board that can reconfigure themselves hundreds or thousands of times a second. This makes it possible for multiple applications to run at the same time on the same chips making them 1000 times faster than traditional commercial CPUs. This maximizes the use of millions of transistors (gates) on each silicon array. Traditional processors, because of their general purpose design, are wasteful, since for most applications they use only a small fraction of their silicon at any time.

HAL is programmed graphically using the company's proprietary programming language, VIVA. This language facilitates rapid custom software development by the system's users. Besides NASA Langley, other users will include the San Diego Supercomputer Center, Department of Defense, Hollywood film industry and the telecommunications industry.

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NASA Langley is among the first in the world to get "hands on" experience with the new system. It will be implemented to explore:

-Solutions for structural, electromagnetic and fluid analysis
-Radiation analysis for astronaut safety
-Atmospheric science analysis
-Digital signal processing
-Pattern recognition
-Acoustic analysis

Media Briefing: A media briefing will be held at 9 a.m., Tuesday, March 27, at the Pearl Young Theater Newsroom, Bldg. 1202, 5 North Dryden Street at NASA Langley Research Center. There will be a news briefing and short demonstration at 9 am followed by a demonstration and discussion for scientists and engineers. HAL developer Kent Gilson and Star Bridge Systems, Inc. CEO Brent Ward will conduct the demonstration. Two Langley researchers, Dr. Robert Singletarry and Dr. Olaf Storaasli, trained on the new system and will report on their first-hand experiences with the hypercomputer.

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